



Water-Data Report 2008

**08095300 Middle Bosque River near McGregor, TX**

Middle Brazos-Bosque Basin  
Bosque Subbasin

LOCATION.--Lat 31°30'33", long 97°21'56" referenced to North American Datum of 1927, McLennan County, TX, Hydrologic Unit 12060203, on left downstream side of bridge on Farm Road 3047, 1,100 ft downstream from Pecan Creek, 5.0 mi upstream from mouth, and 5.2 mi northeast of McGregor.

DRAINAGE AREA.--182 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--Aug. 1959 to Sept. 1985 (daily mean discharge), Oct. 1985 to Sept. 2007 (peak discharges greater than base discharge), Oct. 2007 to current year (daily mean discharge).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 530.51 ft above NGVD of 1929. Prior to Oct. 27, 1959, nonrecording gage at same site and datum. Satellite telemeter at station.

REMARKS.--Records fair except for daily values below 5 ft<sup>3</sup>/s, which are poor. No known regulation or diversions. No flow at times.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--26 years (water years 1960-1985), 78.4 ft<sup>3</sup>/s (56,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft<sup>3</sup>/s Mar 29, 2007 (gage height, 26.80 ft). No flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1889, which reached a stage of 28.5 ft. A flood in 1957 reached a stage of 28.2 ft; and floods in 1913 and 1942 or 1943 reached a stage of about 28 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--The peak for the 2008 water year occurred on May 14, 2008. The highest recorded peak discharge is 5,310 ft<sup>3</sup>/s (gage height, 9.66 ft). The peak is actually higher than the recorded peak, but the actual peak value is unknown as the gage malfunctioned due to a lightning strike.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar 18	2115	3,630	7.81
May 14		*5,310	Unknown

## Water-Data Report 2008

## 08095300 Middle Bosque River near McGregor, TX—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**  
**DAILY MEAN VALUES**  
[*e*, estimated]

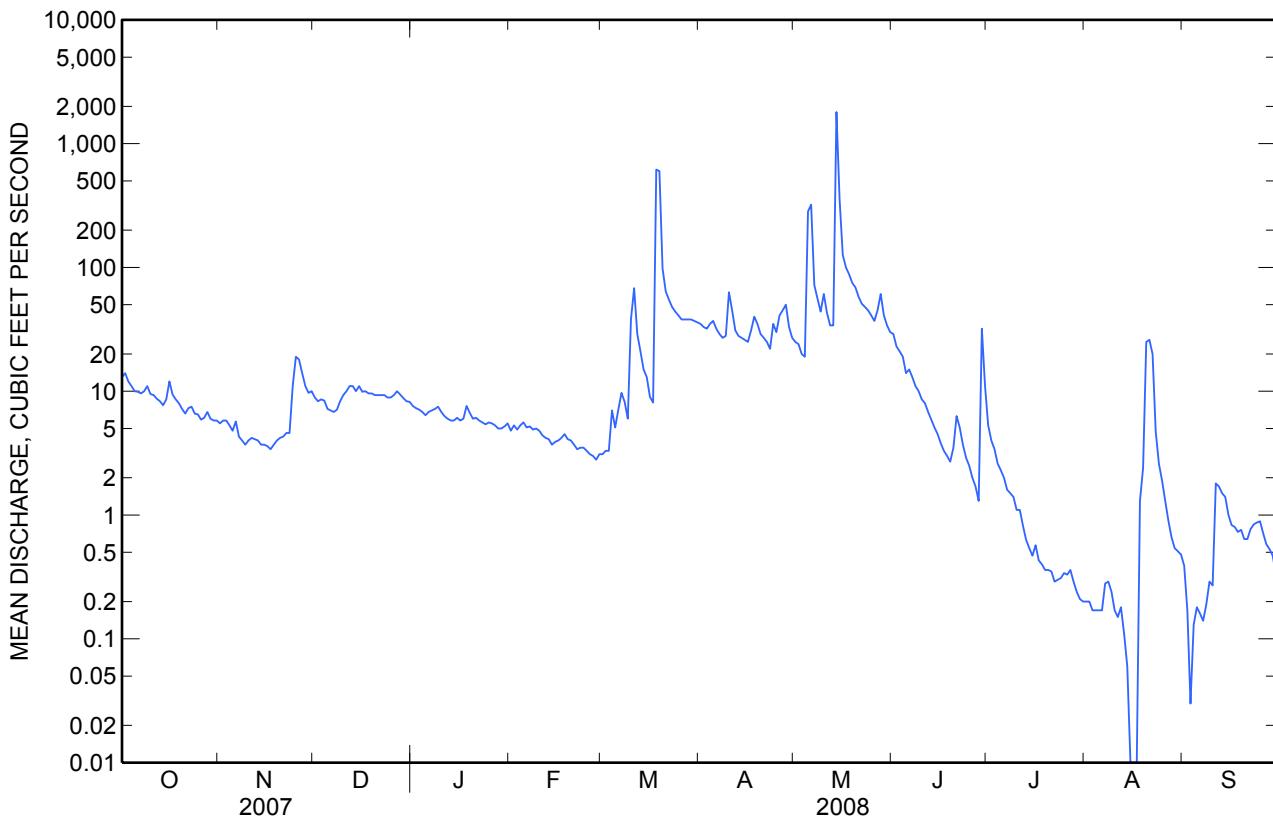
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	13	5.5	e8.9	7.6	4.8	3.1	35	25	29	5.3	e0.20	0.39
2	14	5.8	8.3	7.3	5.3	e3.3	33	24	23	4.0	e0.20	0.17
3	12	5.8	8.6	7.1	4.9	3.3	32	20	21	3.4	e0.17	0.03
4	11	5.3	8.4	6.8	5.3	7.0	35	19	19	2.6	e0.17	0.13
5	10	4.8	7.2	6.4	e5.6	5.1	37	283	14	2.3	e0.17	0.18
6	9.9	5.7	7.0	6.8	e5.1	7.1	32	321	15	2.0	0.17	0.16
7	9.6	4.3	6.8	7.0	e5.2	9.7	29	72	13	1.6	e0.28	0.14
8	10	4.0	7.1	e7.2	e4.9	8.2	27	56	11	1.5	e0.29	0.19
9	11	3.7	8.3	7.5	5.0	6.0	28	e44	10	1.4	e0.24	0.29
10	9.5	4.0	9.3	e6.8	4.8	38	63	61	8.6	1.1	0.17	0.27
11	9.3	4.2	10	6.3	4.4	68	45	43	8.0	1.1	e0.15	1.8
12	8.7	4.1	11	6.0	4.2	29	31	34	6.8	0.82	e0.18	1.7
13	8.3	4.0	11	5.8	4.1	21	28	34	5.9	0.63	0.11	1.5
14	7.7	3.7	10	5.8	3.7	15	27	e1,800	5.1	0.54	0.06	1.4
15	8.6	3.7	e11	6.1	3.9	13	26	353	4.5	0.47	0.01	1.0
16	12	3.6	9.9	5.8	4.0	9.0	25	126	3.8	0.57	0.00	0.83
17	9.4	3.4	10	6.0	e4.2	8.1	31	100	3.3	0.43	0.00	0.80
18	8.6	3.7	9.6	7.6	4.5	617	40	88	3.0	0.40	1.3	0.73
19	8.0	4.0	9.6	6.7	e4.1	600	35	75	2.7	0.36	2.4	0.76
20	7.2	4.2	e9.3	6.0	4.0	98	29	69	3.5	0.36	25	0.64
21	6.6	4.3	9.3	6.1	3.7	64	27	58	6.3	0.35	26	0.64
22	7.3	4.6	e9.3	5.8	3.4	55	25	51	5.1	0.29	20	0.77
23	7.5	4.6	9.3	5.6	3.5	48	22	48	3.7	0.30	4.7	0.84
24	6.6	11	8.9	5.4	3.5	44	35	45	2.9	0.31	2.6	0.87
25	6.5	19	8.9	5.6	3.3	41	30	41	2.5	0.34	1.9	0.89
26	5.9	18	e9.3	5.5	e3.1	38	41	37	2.0	0.33	1.3	0.71
27	6.1	14	10	5.3	3.0	38	45	45	1.7	0.36	0.90	0.58
28	6.8	11	9.4	5.0	e2.8	38	50	61	1.3	e0.29	0.66	0.53
29	6.0	9.7	8.8	e5.0	3.1	38	33	41	32	e0.24	0.54	0.47
30	5.8	10	8.3	5.2	---	37	27	34	11	e0.21	0.51	0.33
31	5.8	---	8.2	e5.5	---	36	---	30	---	e0.20	0.48	---
<b>Total</b>	268.7	193.7	281.0	192.6	121.4	2,045.9	1,003	4,138	278.7	34.10	90.86	19.74
<b>Mean</b>	8.67	6.46	9.06	6.21	4.19	66.0	33.4	133	9.29	1.10	2.93	0.66
<b>Max</b>	14	19	11	7.6	5.6	617	63	1,800	32	5.3	26	1.8
<b>Min</b>	5.8	3.4	6.8	5.0	2.8	3.1	22	19	1.3	0.20	0.00	0.03
<b>Ac-ft</b>	533	384	557	382	241	4,060	1,990	8,210	553	68	180	39

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2008, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	8.67	6.46	9.06	6.21	4.19	66.0	33.4	133	9.29	1.10	2.93	0.66
<b>Max</b>	8.67	6.46	9.06	6.21	4.19	66.0	33.4	133	9.29	1.10	2.93	0.66
(WY)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)
<b>Min</b>	8.67	6.46	9.06	6.21	4.19	66.0	33.4	133	9.29	1.10	2.93	0.66
(WY)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)	(2008)

**08095300 Middle Bosque River near McGregor, TX—Continued****SUMMARY STATISTICS**

	Water Year 2008		Water Years 1996 - 2008	
<b>Annual total</b>	8,667.70			
<b>Annual mean</b>	23.7		23.7	
<b>Highest annual mean</b>			23.7	2008
<b>Lowest annual mean</b>			23.7	2008
<b>Highest daily mean</b>	1,800	May 14	1,800	May 14, 2008
<b>Lowest daily mean</b>	0.00	Aug 16	0.00	Aug 16, 2008
<b>Annual seven-day minimum</b>	0.07	Aug 11	0.07	Aug 11, 2008
<b>Maximum peak flow</b>	3,630	Mar 18	47,400	Mar 29, 2007
<b>Maximum peak stage</b>	7.81	Mar 18	26.80	Mar 29, 2007
<b>Annual runoff (ac-ft)</b>	17,190		17,160	
<b>10 percent exceeds</b>	40		40	
<b>50 percent exceeds</b>	6.1		6.1	
<b>90 percent exceeds</b>	0.35		0.35	



## 08095300 Middle Bosque River near McGregor, TX—Continued

**WATER-QUALITY RECORDS**

PERIOD OF RECORD--

CHEMICAL DATA: Dec. 1961 to Sept. 1964, Oct. 1997 to Sep. 2008 (discontinued).

BIOCHEMICAL DATA: Dec. 1961 to Sept. 1964, Oct. 1997 to Sep. 2008 (discontinued).

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 1 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Time	Sample medium and type			Turbidity				Disolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)
			Discharge, cfs (00060)	Instantaneous discharge, cfs (00061)	white light, det ang 90+/-30 corrctd NTRU (63676)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)			
Feb 19...	1300	Surface water, regular	--	4.7	E1.0	751	11.1	108	8.2	
May 28...	1710	Surface water, regular	56	--	3.3	750	9.3	128	8.3	
Aug 12...	1255	Surface water, regular	<.01	--	4.6	745	7.3	100	8.1	
Sep 05...	1043	Surface water, regular	<.01	--	5.8	--	7.3	--	8.4	

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 2 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Specific conductance, $\mu\text{S}/\text{cm}$ at 25 deg C (00095)		Temperature, air, deg C (00020)		Temperature, water, deg C (00010)		Hardness, water, mg/L as CaCO <sub>3</sub> (00900)		Noncarbonate hardness, water, mg/L as CaCO <sub>3</sub> (00904)		Magnesium, water, mg/L (00915)		Potassium, water, mg/L (00925)		Sodium adsorption ratio (00931)		Sodium fraction of cations percent (00932)		Sodium, water, mg/L (00930)		Alkalinity, water, fxd end lab, mg/L as CaCO <sub>3</sub> (29801)		Alkalinity, water, inf tit field, mg/L as CaCO <sub>3</sub> (39086)	
	Specif-ic conduc-tance, wat unf	Temper-ature, wat air, unf	Temper-ature, wat water, unf	Hard-ness, wat	Hard-ness, filtrd, field,	Wat-ter, water, filtrd,	Cal-cium, water, filtrd,	Magnes-i um, water, filtrd,	Potas-sium, water, filtrd,	Sodium adsorp-tion ratio	Sodium fraction of cations percent	Sodium, water, fltrd,	Alka-linity, wat flt fxd end lab,	Alka-linity, wat flt inf tit field,										
Feb 19...	364	18.7	13.2	160	--	58.5	2.94	1.15	.4	15	12.7	146	--											
May 28...	345	31.8	31.2	150	E28	56.6	2.65	1.83	.3	11	8.75	--	125											
Aug 12...	268	34.0	30.4	94	E10	33.7	2.35	2.55	.8	28	17.1	--	84											
Sep 05...	221	29.6	24.5	86	E10	30.4	2.47	3.60	.4	17	8.24	--	76											

## 08095300 Middle Bosque River near McGregor, TX—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 3 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Bicarbonate, wat flt infl pt titr., field, mg/L (00453)	Carbon- ate, wat flt infl pt titr., field, mg/L (00452)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L as SiO <sub>2</sub> (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, filtrd, sum of consti- tuents mg/L (70301)	Residue + total non- filter- able, mg/L (00530)	Ammonia water, unfiltrd mg/L as N (00625)	Ammonia water, filtrd, mg/L as N (71846)	Ammonia water, filtrd, mg/L as N (00608)	Nitrate + nitrite water, filtrd, mg/L (00631)	Nitrate water, filtrd, mg/L (71851)
Feb 19...	--	--	11.7	.27	4.00	25.0		12	.19	E.01	E.011	.25	E1.10
May 28...	E151	<1	7.16	.31	6.66	30.6	E196	<10	.25	--	<.020	1.50	6.60
Aug 12...	E102	<1	14.8	.38	15.6	24.2	E162	<10	.59	.04	.032	.06	.242
Sep 05...	E93	<1	6.47	.31	9.78	21.0	E128	<10	.59	E.01	E.011	E.03	E.115

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 4 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Nitrate water, filtrd, mg/L as N (00618)	Nitrite water, filtrd, mg/L (71856)	Nitrite water, filtrd, mg/L as N (00613)	Organic nitro- gen, water, unfiltrd mg/L (00605)	Total nitro- gen, water, unfiltrd mg/L (00600)	Ortho- phosphate, water, filtrd, mg/L as P (00660)	Phos- phate, water, filtrd, mg/L as P (00671)	Phos- phorus, water, filtrd, mg/L as P (00666)	Phos- phorus, water, unfiltrd mg/L as P (00665)	Organic carbon, water, unfiltrd mg/L (00680)	BOD, water, 5 day, 20 degC mg/L (00310)	Alum- inum, water, filtrd, μg/L (01106)	Anti- mony, water, filtrd, μg/L (01095)
Feb 19...	E.25	E.006	E.002	E.19	.44	--	<.006	<.006	<.04	2.3	<2.0	11.6	<.14
May 28...	1.49	.029	.009	--	1.8	E.010	E.003	<.006	<.04	2.8	<2.0	4.7	E.09
Aug 12...	.05	.011	.003	.56	.65	.035	.011	.008	E.03	5.9	<2.0	7.9	E.10
Sep 05...	E.03	E.004	E.001	E.59	E.62	E.012	E.004	.011	E.03	7.2	<2.0	--	--

## 08095300 Middle Bosque River near McGregor, TX—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 5 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)	Beryllium, water, fltrd, µg/L (01010)	Cadmium, water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Cobalt, water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Lead, water, fltrd, µg/L (01049)	Manganese, water, fltrd, µg/L (01056)	Mercury, water, fltrd, µg/L (71890)	Molybdenum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Selenium, water, fltrd, µg/L (01145)
Feb 19...	.93	37	<.01	<.04	<.12	.05	E.51	E.04	5.6	<.010	.4	.34	.09
May 28...	1.6	40	<.01	<.04	<.12	.09	<1.0	<.08	2.8	<.010	.5	.59	.34
Aug 12...	6.1	35	<.01	<.04	<.12	.16	<1.0	E.05	7.0	<.010	1.2	.93	.19
Sep 05...	--	--	--	--	--	--	--	--	--	--	--	--	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2007 TO**  
**SEPTEMBER 2008**

Part 6 of 6

[Remark codes: &lt;, less than; E, estimated.]

Date	Silver, water, fltrd, µg/L (01075)	Zinc, water, fltrd, µg/L (01090)	Uranium natural, water, fltrd, µg/L (22703)
Feb 19...	<.1	<1.8	.73
May 28...	<.1	<1.8	.50
Aug 12...	<.1	2.5	.23
Sep 05...	--	--	--